SEQUENCE LISTING

<110> Merck & Co., Inc.

<120> OPTIMIZED EXPRESSION OF HPV 58 L1 In
   YEAST

<130> 21561 PCT

<150> 60/519,211
<151> 2003-11-12

<160> 10

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1497
<212> DNA
<213> Artificial Sequence

<220>
<223> HPV58 L1-R

<400> 1
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gtcgtctcca ctgacgaata cgtctctaga acctctatct actactacgc tggttcctct 120
agattgttgg ctgttggtaa cccatacttc tccatcaagt ctccaaacaa caacaagaag 180
gtcttggttc caaaggtctc tggtttgcaa tacagagtct tcagagtcag attgccagac 240
ccaaacaagt tcggtttccc agacacttcc ttctacaacc cagacactca aagattggtc 300
tgggcttgtg tcggtttgga aatcggtaga ggtcaaccat ggggtgttgg tgtctctggt 360
cacccatact tcaacaagtt cgacgacacc gaaacctcca acagataccc agctcaacca 420
ggttctgaca acagagaatg tttgtccatg gactacaagc aaacccaatt gtgtttgatc 480
ggttgtaagc caccaactgg tgaacactgg ggtaagggtg ttgcttgtaa caacaacgct 540
gctgctaccg actgtccacc attggaattg ttcaactcca tcatcgaaga cggtgacatg 600
gtcgacactg gtttcggttg tatggacttc ggtaccttgc aagctaacaa gtccgacgtt 660
ccaatcgaca tctgtaactc cacctgtaag tacccagact acttgaagat ggcttctgaa 720
ccatacggtg actccttgtt cttcttcttg agaagagaac aaatgttcgt cagacacttc 780
ttcaacagag ctggtaagtt gggtgaagct gttccagacg acttgtacat caagggttct 840
ggtaacaccg ctgtcatcca atcctctgct ttcttcccaa ctccatctgg ttccatggtc 900
acctctgaat ctcaattgtt caacaagcca tactggttgc aaagagctca aggtcacaac 960
aacggtatct gttggggtaa ccaattgttc gtcactgtcg tcgacaccac tagatccact 1020
aacatgacct tgtgtaccga agtcaccaag gaaggtacct acaagaacga caacttcaag 1080
gaatacgtca gacacgtcga ggaatacgac ttgcaattcg tcttccaatt gtgtaagatc 1140
accttgactg ctgaaatcat gacctacatc cacaccatgg actctaacat cttggaagac 1200
tggcaattcg gtttgactcc accaccatct gcttccttgc aagacaccta cagattcgtc 1260
acctctcaag ctatcacctg tcaaaagact gctccaccaa aggaaaagga gacccattg 1320
aacaagtaca ccttctggga agtcaacttg aaggaaaagt ctctgctga cttggaccaa 1380
ttcccattgg gtagaaagtt cttgttgcaa tctggtttga aggctaagcc aagattgaag 1440
agatctgctc caaccactag agctccatcc accaagagaa agaaggtcaa gaagtaa 1497

<210> 2
<211> 498
<212> PRT
<213> Human Papillomavirus Type 58

<400> 2
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1   5   10   15
Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr Val Ser Arg Thr Ser
            20   25   30

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Ile Tyr Tyr Tyr Ala Gly Ser Ser Arg Leu Leu Ala Val Gly Asn Pro
        35                  40                  45
Tyr Phe Ser Ile Lys Ser Pro Asn Asn Asn Lys Lys Val Leu Val Pro
    50              55                  60
Lys Val Ser Gly Leu Gln Tyr Arg Val Phe Arg Val Arg Leu Pro Asp
65                  70              75                      80
Pro Asn Lys Phe Gly Phe Pro Asp Thr Ser Phe Tyr Asn Pro Asp Thr
                85                  90                  95
Gln Arg Leu Val Trp Ala Cys Val Gly Leu Glu Ile Gly Arg Gly Gln
            100                 105                 110
Pro Leu Gly Val Gly Val Ser Gly His Pro Tyr Phe Asn Lys Phe Asp
        115                 120                 125
Asp Thr Glu Thr Ser Asn Arg Tyr Pro Ala Gln Pro Gly Ser Asp Asn
    130                 135                 140
Arg Glu Cys Leu Ser Met Asp Tyr Lys Gln Thr Gln Leu Cys Leu Ile
145                 150                 155                 160
Gly Cys Lys Pro Pro Thr Gly Glu His Trp Gly Lys Gly Val Ala Cys
            165                 170                 175
Asn Asn Asn Ala Ala Ala Thr Asp Cys Pro Pro Leu Glu Leu Phe Asn
        180                 185                 190
Ser Ile Ile Glu Asp Gly Asp Met Val Asp Thr Gly Phe Gly Cys Met
        195                 200                 205
Asp Phe Gly Thr Leu Gln Ala Asn Lys Ser Asp Val Pro Ile Asp Ile
    210                 215                 220
Cys Asn Ser Thr Cys Lys Tyr Pro Asp Tyr Leu Lys Met Ala Ser Glu
225                 230                 235                 240
Pro Tyr Gly Asp Ser Leu Phe Phe Phe Leu Arg Arg Glu Gln Met Phe
            245                 250                 255
Val Arg His Phe Phe Asn Arg Ala Gly Lys Leu Gly Glu Ala Val Pro
        260                 265                 270
Asp Asp Leu Tyr Ile Lys Gly Ser Gly Asn Thr Ala Val Ile Gln Ser
        275                 280                 285
Ser Ala Phe Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser Glu Ser
    290                 295                 300
Gln Leu Phe Asn Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn
305                 310                 315                 320
Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp Thr
            325                 330                 335
Thr Arg Ser Thr Asn Met Thr Leu Cys Thr Glu Val Thr Lys Glu Gly
            340                 345                 350
Thr Tyr Lys Asn Asp Asn Phe Lys Glu Tyr Val Arg His Val Glu Glu
        355                 360                 365
Tyr Asp Leu Gln Phe Val Phe Gln Leu Cys Lys Ile Thr Leu Thr Ala
    370                 375                 380
Glu Ile Met Thr Tyr Ile His Thr Met Asp Ser Asn Ile Leu Glu Asp
385                 390                 395                 400
Trp Gln Phe Gly Leu Thr Pro Pro Pro Ser Ala Ser Leu Gln Asp Thr
            405                 410                 415
Tyr Arg Phe Val Thr Ser Gln Ala Ile Thr Cys Gln Lys Thr Ala Pro
        420                 425                 430
Pro Lys Glu Lys Glu Asp Pro Leu Asn Lys Tyr Thr Phe Trp Glu Val
        435                 440                 445
Asn Leu Lys Glu Lys Phe Ser Ala Asp Leu Asp Gln Phe Pro Leu Gly
    450                 455                 460
Arg Lys Phe Leu Leu Gln Ser Gly Leu Lys Ala Lys Pro Arg Leu Lys
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Arg Ser Ala Pro Thr Thr Arg Ala Pro Ser Thr Lys Arg Lys Lys Val
            485                 490                 495
Lys Lys
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<210> 3
<211> 1497
<212> DNA
<213> Human Papillomairus Type 58

<400> 3
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agactttttgg ctgttggcaa tccatatttt tccatcaaaa gtcccaataa caataaaaaa 180
gtattagttc ccaaggtatc aggcttacag tatagggtct ttagggtgcg tttacctgat 240
cccaataaat ttggttttcc tgatacatct ttttataacc ctgatacaca acgtttggtc 300
tgggcatgtg taggccttga aataggtagg ggacagccat tgggtgttgg cgtaagtggt 360
catccttatt tcaataaatt tgatgacact gaaaccagta acagatatcc cgcacagcca 420
gggtctgata acagggaatg cttatctatg gattataaac aaacacaatt atgtttaatt 480
ggctgtaaac ctcccactgg tgagcattgg ggtaaaggtg ttgcctgtaa caataatgca 540
gctgctactg attgtcctcc attggaactt tttaattcta ttattgagga tggtgacatg 600
gtagatacag ggtttggatg catggacttt ggtacattgc aggctaataa aagtgatgtg 660
cctattgata tttgtaacag tacatgcaaa tatccagatt atttaaaaat ggccagtgaa 720
ccttatgggg atagtttgtt cttttttctt agacgtgagc agatgtttgt taggcacttt 780
tttaataggg ccggaaaact tggcgaggct gtcccggatg acctttatat taaagggtcc 840
ggtaatactg cagttatcca aagtagtgca ttttttccaa ctcctagtgg ctctatggtt 900
acctcagaat cacaattatt taataagcct tattggctac agcgtgcaca aggtcataac 960
aatggcattt gctggggcaa tcagttattt gttaccgtag ttgataccac tcgtagcact 1020
aatatgacat tatgcactga agtaactaag gaaggtacat ataaaaatga taattttaag 1080
gaatatgtac gtcatgttga agaatatgac ttacagtttg tttttcagct ttgcaaaatt 1140
acactaactg cagagataat gacatatata catactatgg attccaatat tttggaggac 1200
tggcaatttg gtttaacacc tcctccgtct gccagtttac aggacacata tagatttgtt 1260
acctcccagg ctattacttg ccaaaaaaca gcacccccta agaaaagga agatccatta 1320
aataaatata cttttggga ggttaactta aaggaaaagt tttctgcaga tctagatcag 1380
tttcctttgg gacgaaagtt tttattacaa tcaggcctta aagcaaagcc cagactaaaa 1440
cgttcggccc ctactacccg tgcaccatcc accaaacgca aaaggttaa aaaataa 1497
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<210> 4
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 4
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<210> 5
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 5
gagatctgtg taagtaccac aacaatta                                       28
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<210> 6
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer
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<400> 6
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<210> 7
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 7
gggatccgtg taagtaccac aacaatta                                    28

<210> 8
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 8
ggatcccaca aacaaaatg tctgtctgga gacc                              34

<210> 9
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 9
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<210> 10
<211> 1497
<212> DNA
<213> Artificial Sequence

<220>
<223> HPV 58 L1 antisense

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tctaacaacc gacaaccatt gggtatgaag aggtagttca gaggtttgtt gttgttcttc 180
cagaaccaag gtttccagag accaaacgtt atgtctcaga agtctcagtc taacggtctg 240
ggtttgttca agccaaaggg tctgtgaagg aagatgttgg gtctgtgagt ttctaaccag 300
acccgaacac agccaaacct ttagccatct ccagttggta acccacaacc acagagacca 360
gtgggtatga agttgttcaa gctgctgtgg ctttggaggt tgtctatggg tcgagttggt 420
ccaagactgt tgtctcttac aaacaggtac ctgatgttcg tttgggttaa cacaaactag 480
ccaacattcg gtggttgacc acttgtgacc ccattcccac aacgaacatt gttgttgcga 540
cgacgatggc tgacaggtgg taaccttaac aagttgaggt agtagcttct gccactgtac 600
cagctgtgac caaagccaac atacctgaag ccatggaacg ttcgattgtt caggctgcaa 660
ggttagctgt agacattgag gtggacattc atgggtctga tgaacttcta ccgaagactt 720
ggtatgccac tgaggaacaa gaagaagaac tcttctcttg tttacaagca gtctgtgaag 780
aagttgtctc gaccattcaa cccacttcga caaggtctgc tgaacatgta gttcccaaga 840
ccattgtggc gacagtaggt taggagacga aagaagggtt gaggtagacc aaggtaccag 900
tggagactta gagttaacaa gttgttcggt atgaccaacg tttctcgagt tccagtgttg 960
ttgccataga caaccccatt ggttaacaag cagtgacagc agctgtggtg atctaggtga 1020
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ttgtactgga acacatggct tcagtggttc cttccatgga tgttcttgct gttgaagttc 1080
cttatgcagt ctgtgcagct ccttatgctg aacgttaagc agaaggttaa cacattctag 1140
tggaactgac gactttagta ctggatgtag gtgtggtacc tgagattgta gaaccttctg 1200
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ttgttcatgt ggaagaccct tcagttgaac ttccttttca agagacgact gaacctggtt 1380
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